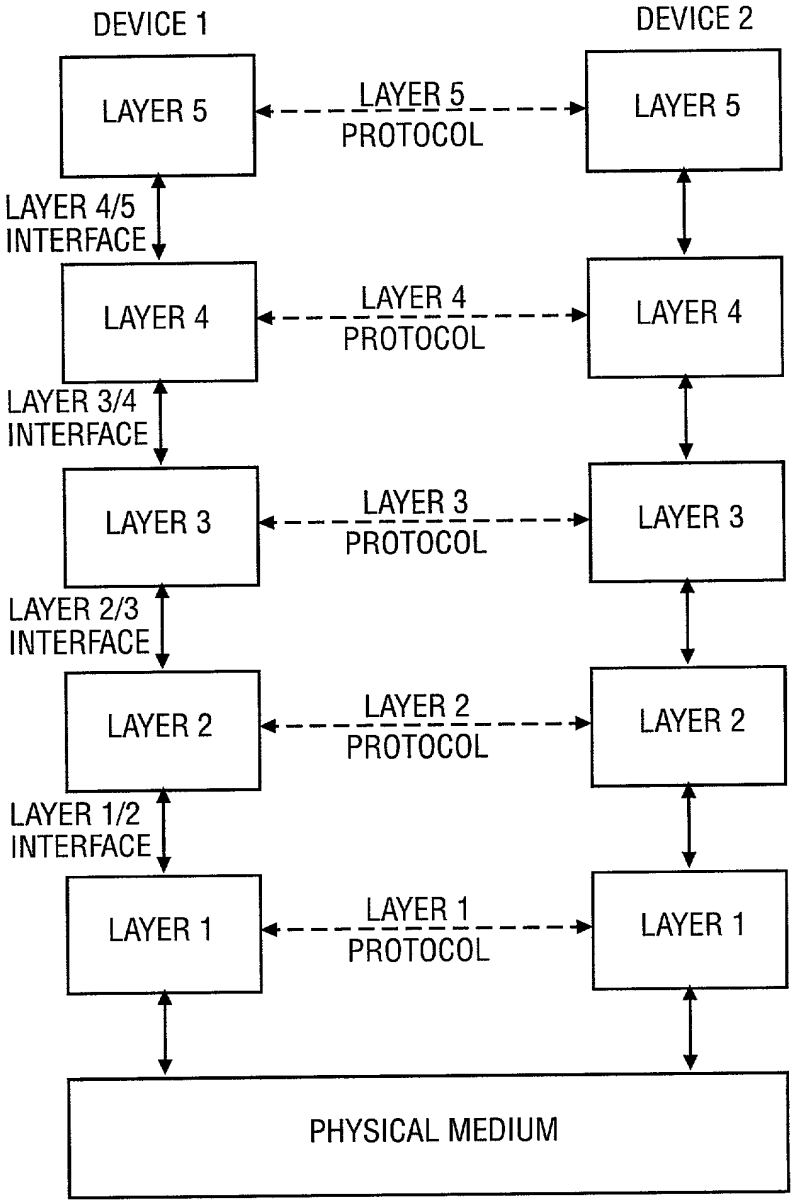
DEVICE 1
DEVICE 2
LAYER 5
LAYER 5
LAYER 5
PROTOCOL
LAYER 4/5
INTERFACE
LAYER 4
LAYER 4
LAYER 4
PROTOCOL
LAYER 3/4
INTERFACE
LAYER 3
LAYER 3
LAYER 3
PROTOCOL
LAYER 2/3
INTERFACE
LAYER 2
LAYER 2
LAYER 2
PROTOCOL
LAYER 1/2
INTERFACE
LAYER 1
LAYER 1
LAYER 1
PROTOCOL
PHYSICAL MEDIUM

FIG. 1

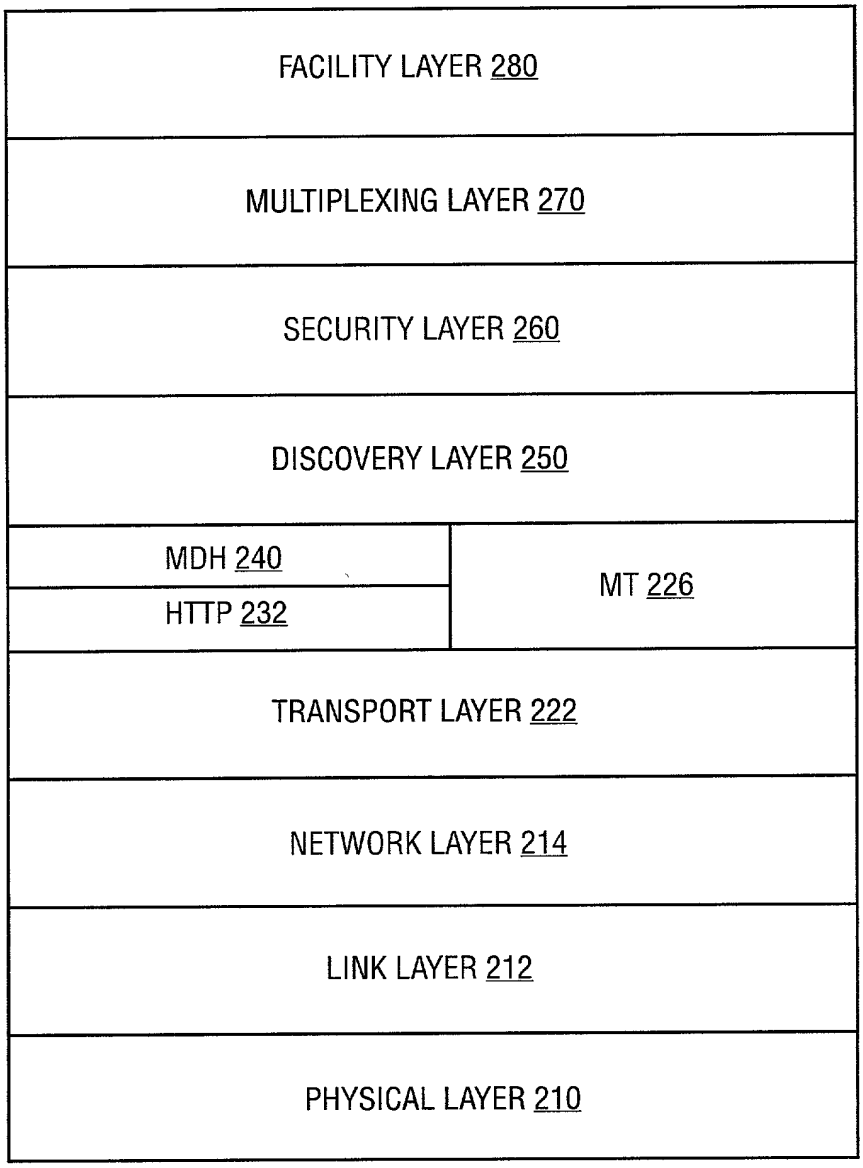
FACILITY LAYER 280
MULTIPLEXING LAYER 270
SECURITY LAYER 260
DISCOVERY LAYER 250
MDH 240
HTTP 232
MT 226
TRANSPORT LAYER 222
NETWORK LAYER 214
LINK LAYER 212
PHYSICAL LAYER 210

FIG. 2

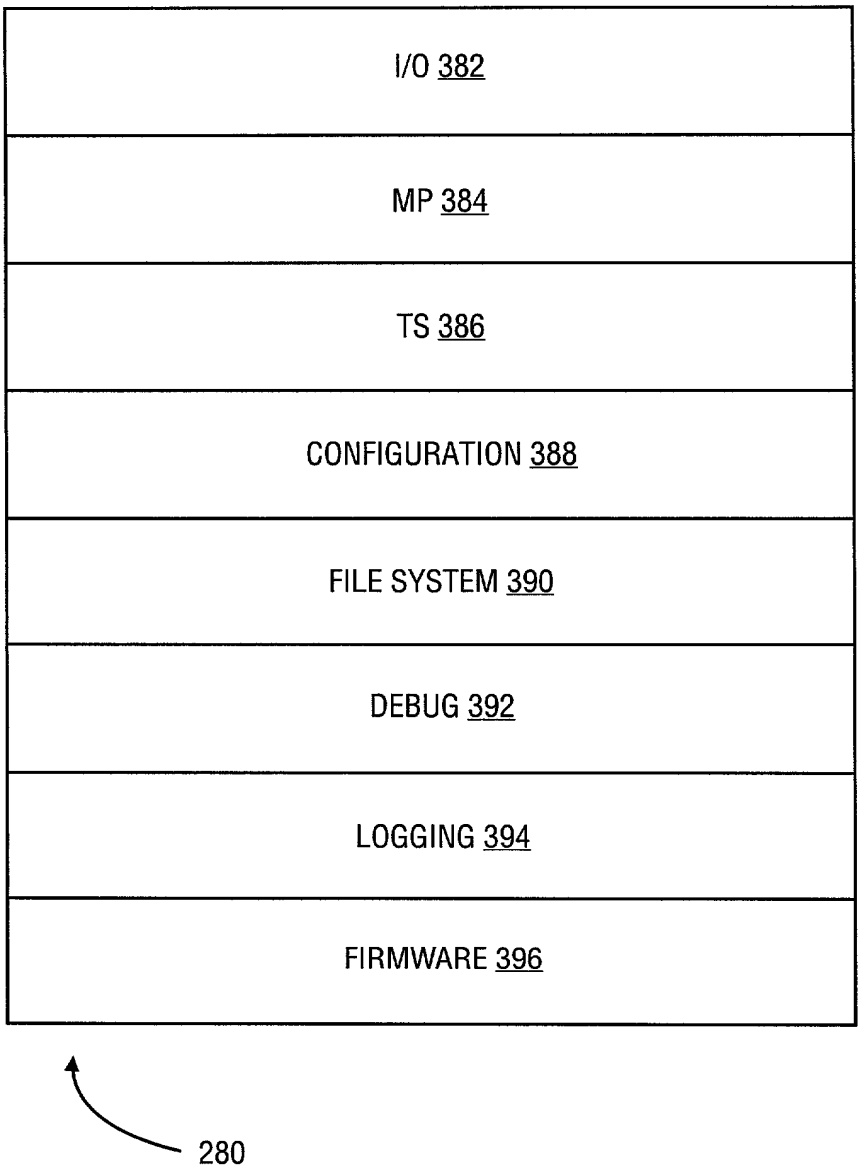
I/O 382
MP 384
TS 386
CONFIGURATION 388
FILE SYSTEM 390
DEBUG 392
LOGGING 394
FIRMWARE 396
280

FIG. 3

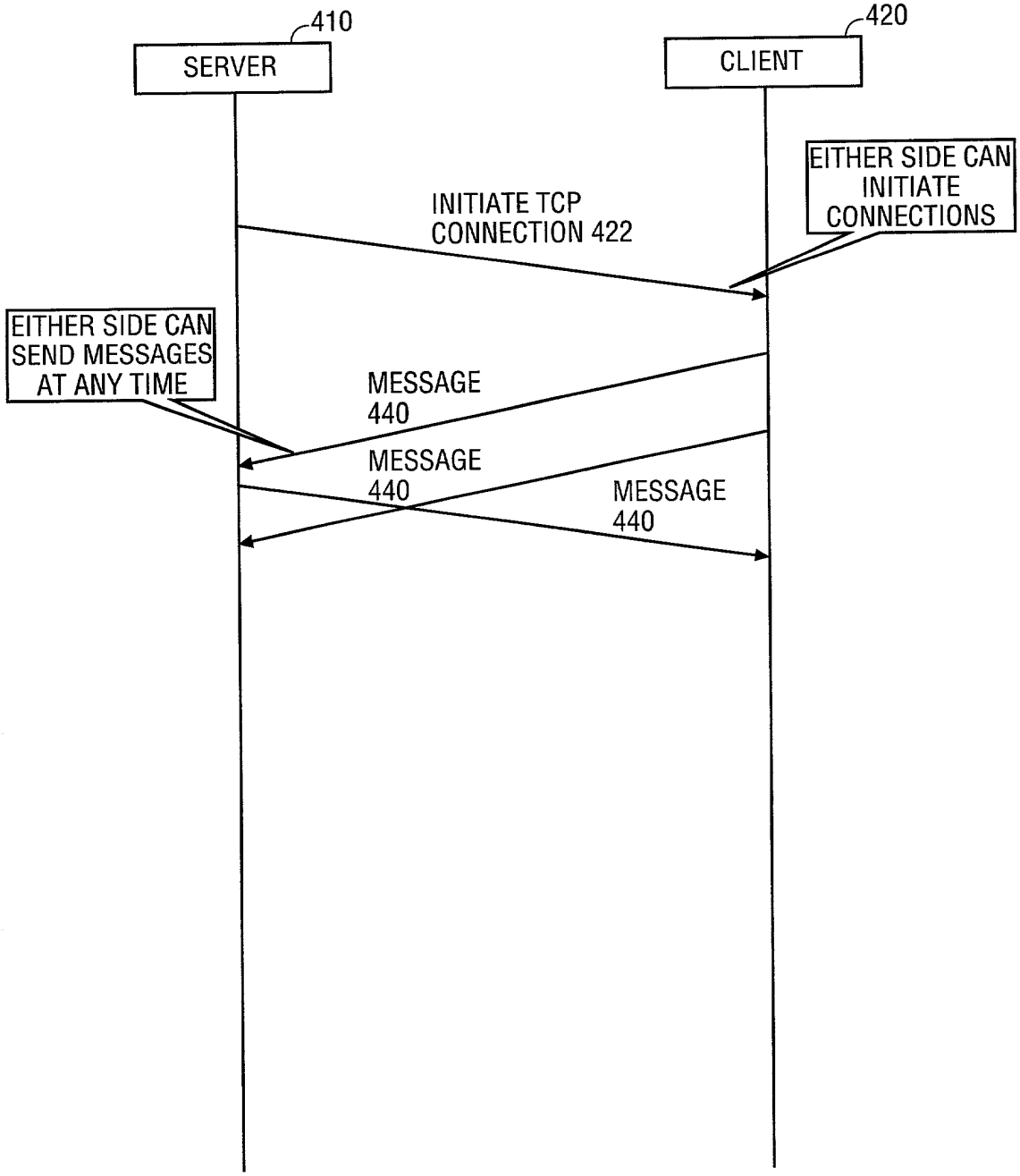
410
SERVER
420
CLIENT
EITHER SIDE CAN INITIATE CONNECTIONS
INITIATE TCP CONNECTION 422
EITHER SIDE CAN SEND MESSAGES AT ANY TIME
MESSAGE 440
MESSAGE 440
MESSAGE 440

FIG. 4

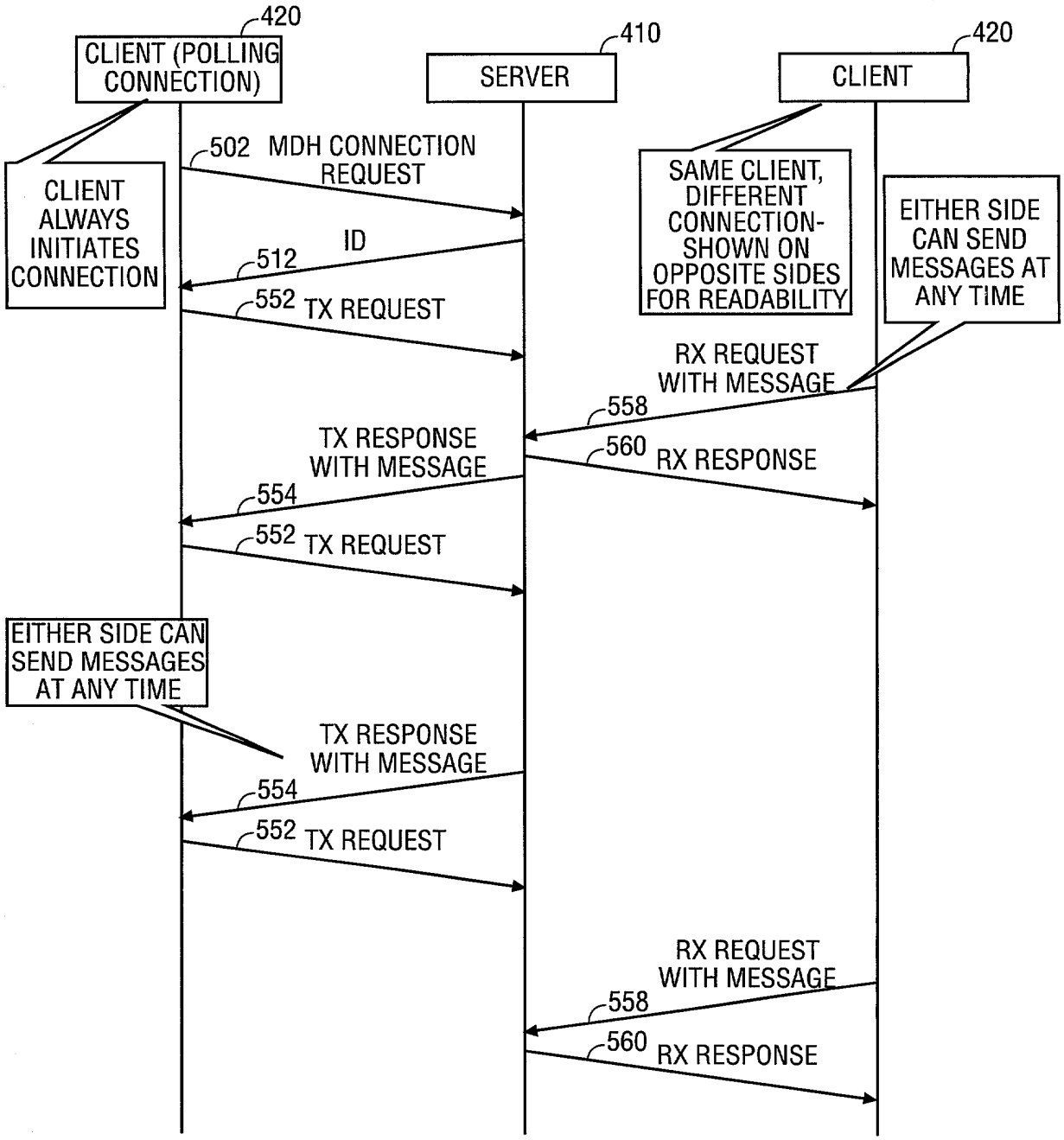
420
CLIENT (POLLING CONNECTION)
410
SERVER
420
CLIENT
CLIENT ALWAYS INITIATES CONNECTION
502 MDH CONNECTION REQUEST
SAME CLIENT, DIFFERENT CONNECTION- SHOWN ON OPPOSITE SIDES FOR READABILITY
EITHER SIDE CAN SEND MESSAGES AT ANY TIME
ID
512
552 TX REQUEST
RX REQUEST WITH MESSAGE
558
TX RESPONSE WITH MESSAGE
560 RX RESPONSE
554
552 TX REQUEST
EITHER SIDE CAN SEND MESSAGES AT ANY TIME
TX RESPONSE WITH MESSAGE
554
552 TX REQUEST
RX REQUEST WITH MESSAGE
558
560 RX RESPONSE

FIG. 5

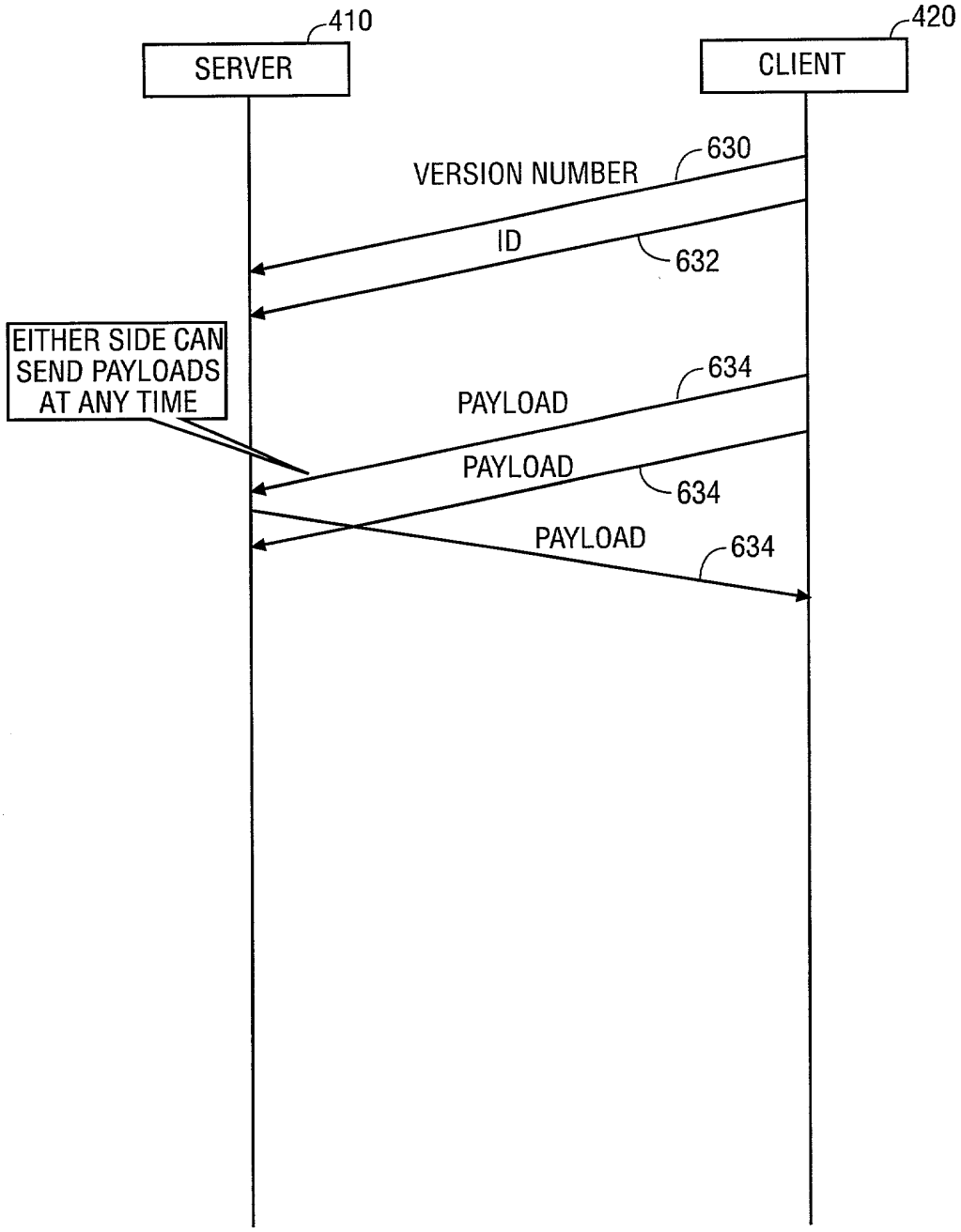
410
SERVER
420
CLIENT
VERSION NUMBER
630
ID
632
EITHER SIDE CAN SEND PAYLOADS AT ANY TIME
PAYLOAD
634
PAYLOAD
634
PAYLOAD
634

FIG. 6

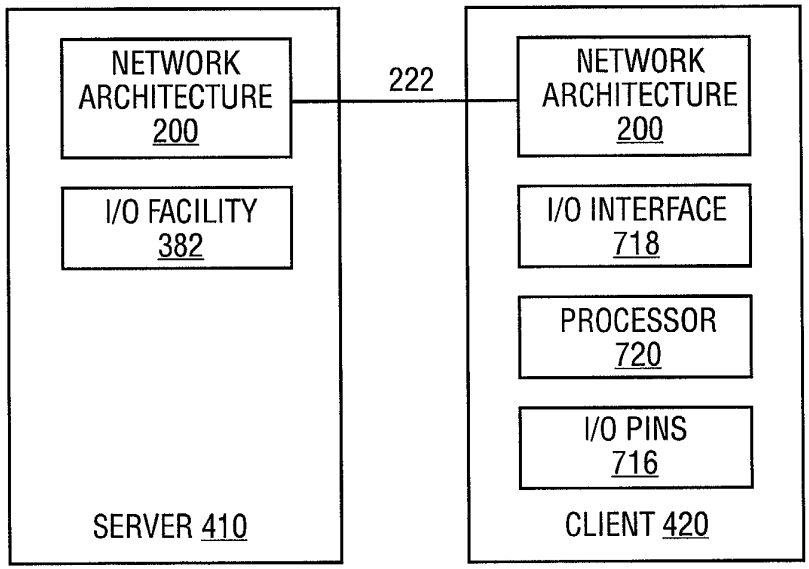
NETWORK ARCHITECTURE 200
I/O FACILITY 382
SERVER 410
222
NETWORK ARCHITECTURE 200
I/O INTERFACE 718
PROCESSOR 720
I/O PINS 716
CLIENT 420

FIG. 7

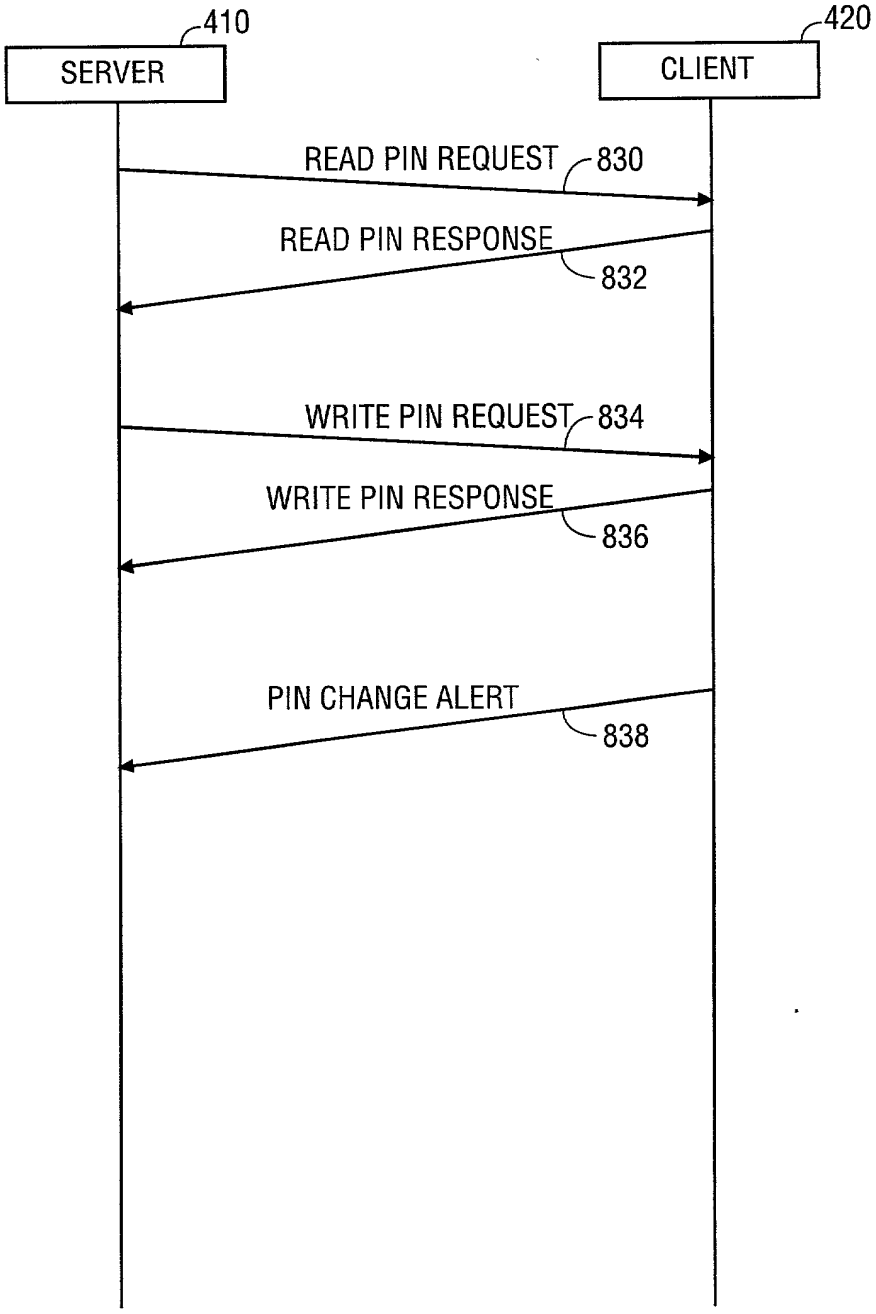
410
SERVER
420
CLIENT
READ PIN REQUEST
830
READ PIN RESPONSE
832
WRITE PIN REQUEST
834
WRITE PIN RESPONSE
836
PIN CHANGE ALERT
838

FIG. 8

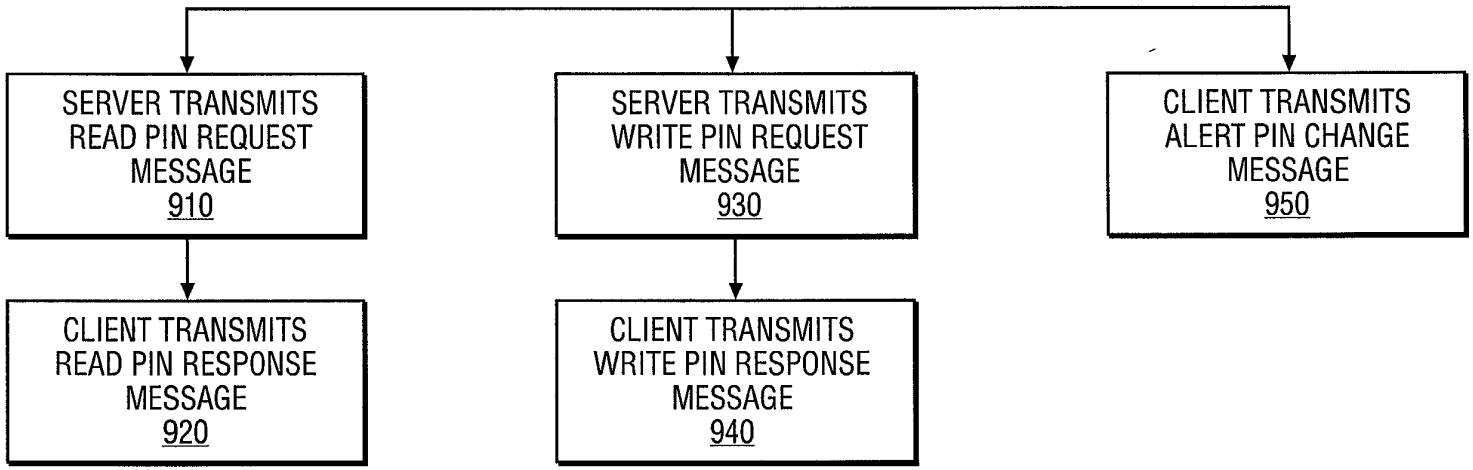
SERVER TRANSMITS READ PIN REQUEST MESSAGE 910
CLIENT TRANSMITS READ PIN RESPONSE MESSAGE 920
SERVER TRANSMITS WRITE PIN REQUEST MESSAGE 930
CLIENT TRANSMITS WRITE PIN RESPONSE MESSAGE 940
CLIENT TRANSMITS ALERT PIN CHANGE MESSAGE 950

FIG. 9

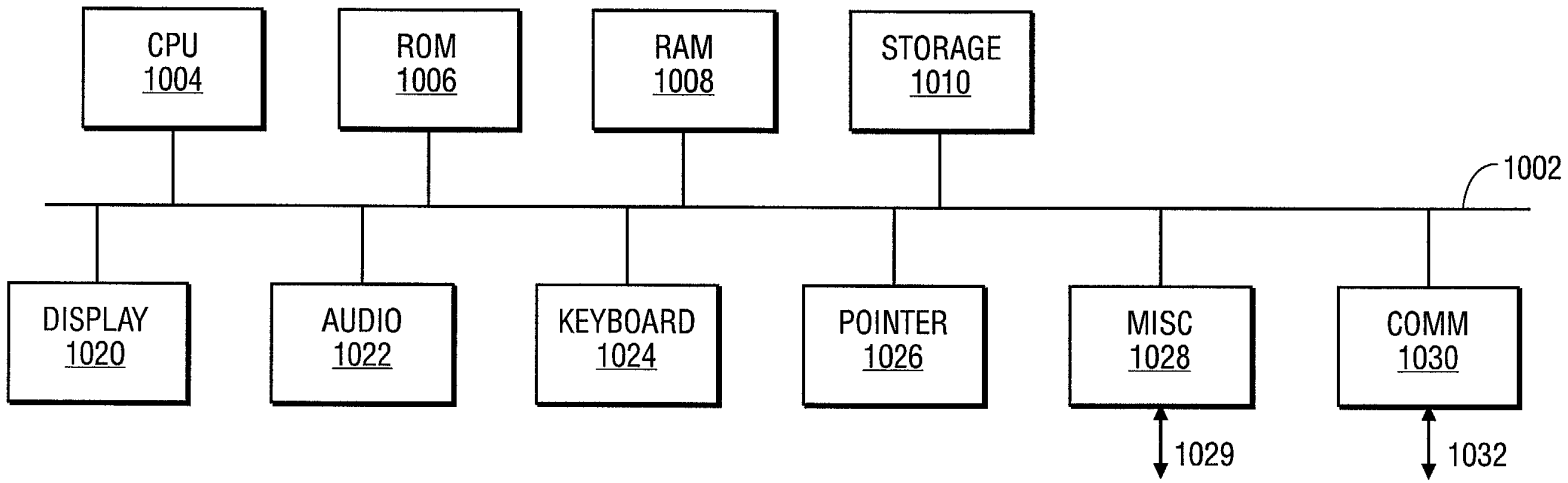
CPU
1004
ROM
1006
RAM
1008
STORAGE
1010
1002
DISPLAY
1020
AUDIO
1022
KEYBOARD
1024
POINTER
1026
MISC
1028
1029
COMM
1030
1032

FIG. 10

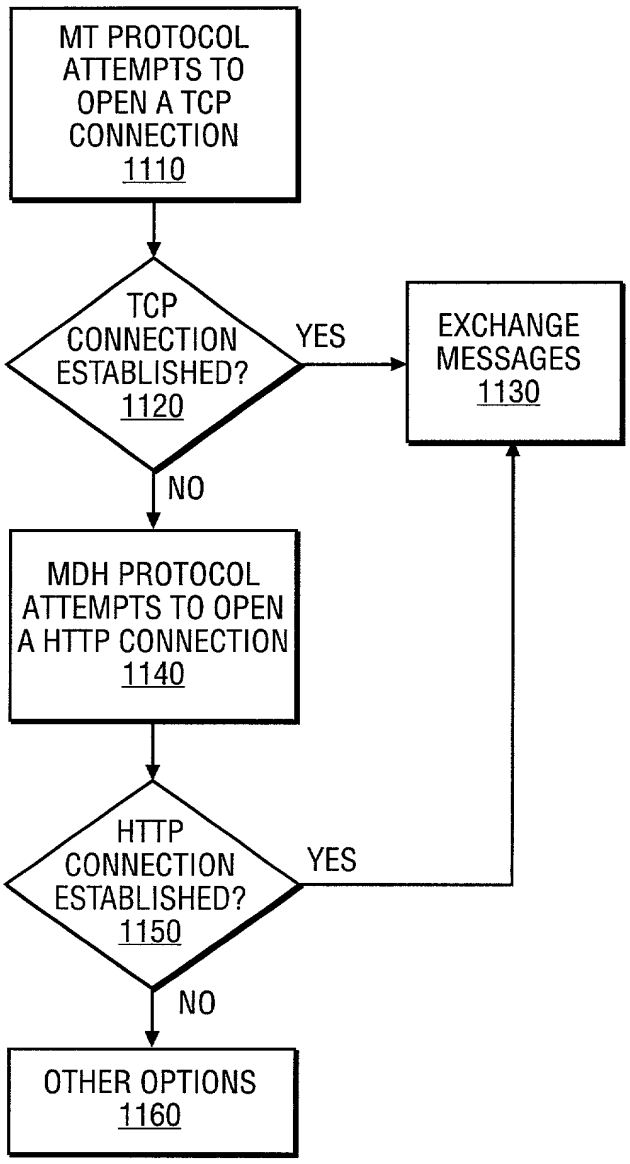
MT PROTOCOL ATTEMPTS TO OPEN A TCP CONNECTION 1110
TCP CONNECTION ESTABLISHED? 1120
YES
EXCHANGE MESSAGES 1130
NO
MDH PROTOCOL ATTEMPTS TO OPEN A HTTP CONNECTION 1140
HTTP CONNECTION ESTABLISHED? 1150
YES
NO
OTHER OPTIONS 1160

FIG. 11

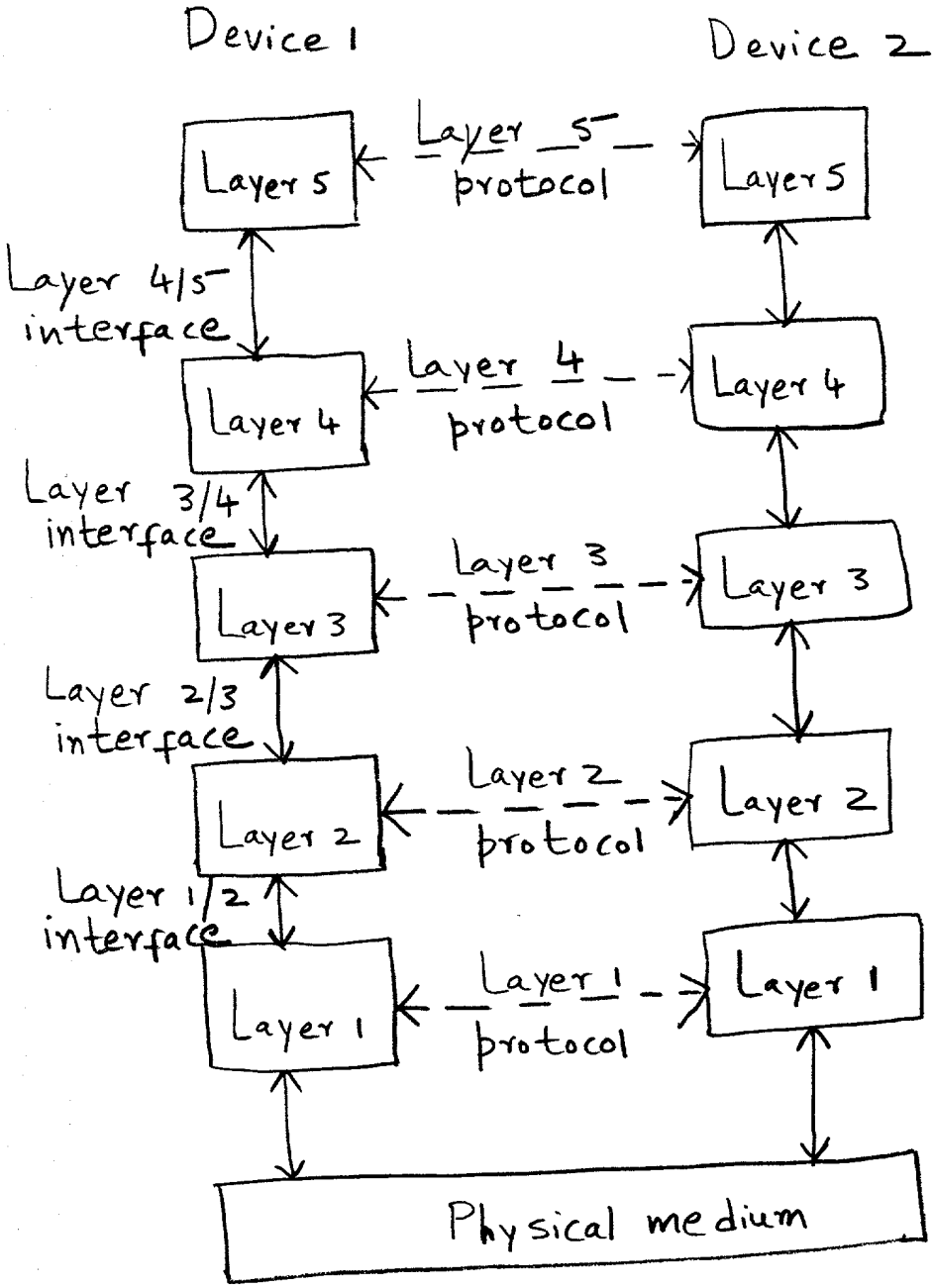
Device 1
Device 2
Layer 5
Layer 5 protocol
Layer 5
Layer 4/5 interface
Layer 4
Layer 4 protocol
Layer 4
Layer 3/4 interface
Layer 3
Layer 3 protocol
Layer 3
Layer 2/3 interface
Layer 2
Layer 2 protocol
Layer 2
Layer 1/2 interface
Layer 1
Layer 1 protocol
Layer 1
Physical medium

Figure 1

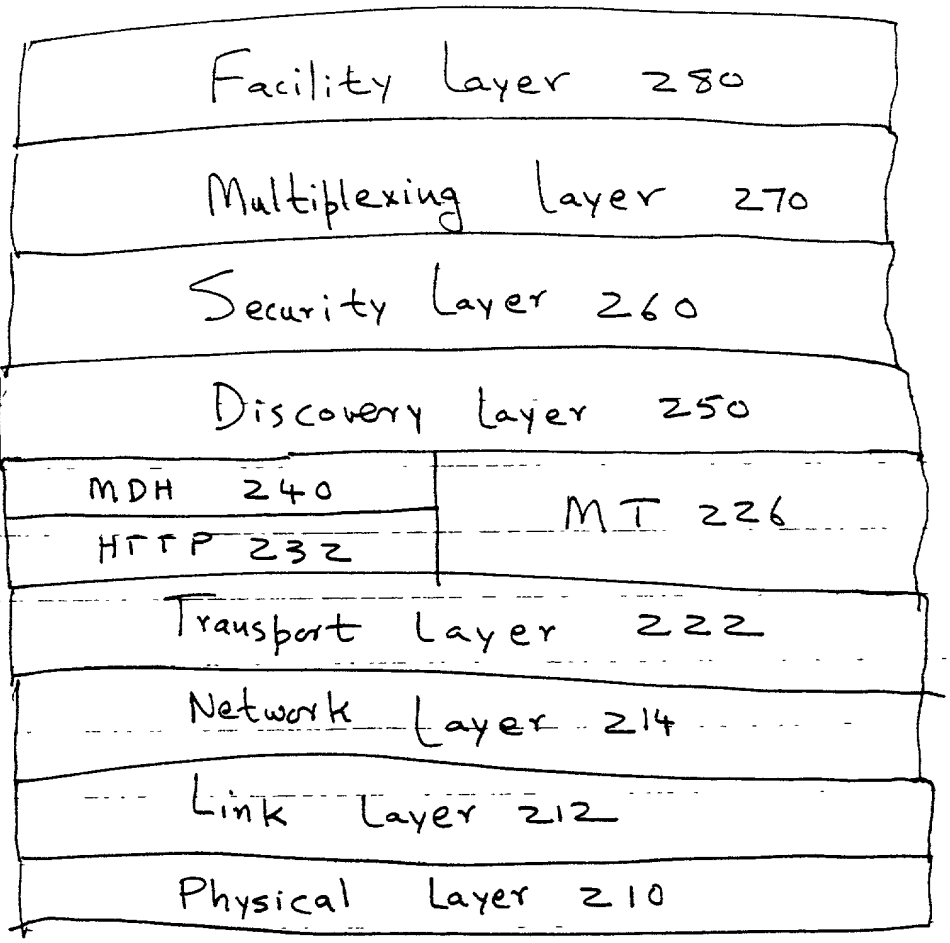
Facility Layer 280
Multiplexing Layer 270
Security Layer 260
Discovery Layer 250
MDH 240
HTTP 232
MT 226
Transport Layer 222
Network Layer 214
Link Layer 212
Physical Layer 210

Figure 2

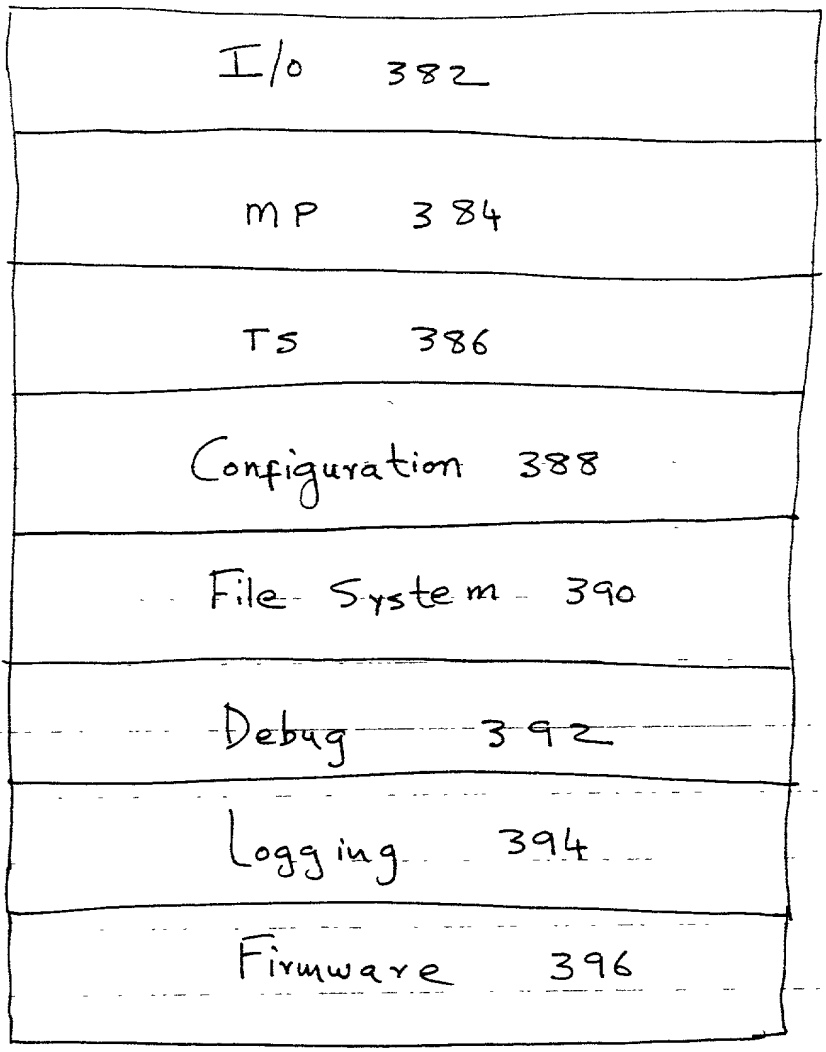
I/O 382
MP 384
TS 386
Configuration 388
File System 390
Debug 392
Logging 394
Firmware 396
280

Figure 3

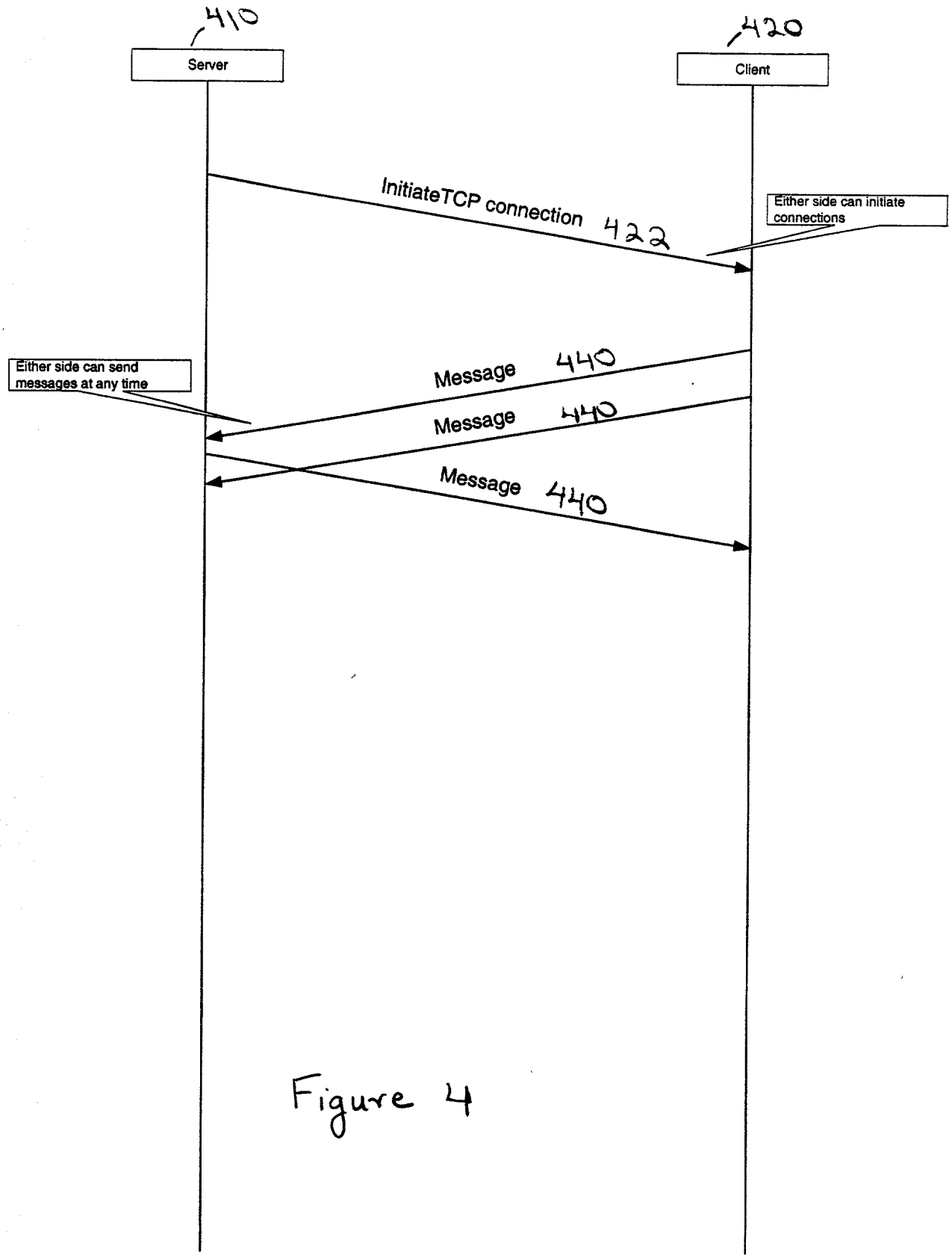
410
Server
420
Client
InitiateTCP connection 422
Either side can initiate connections
Either side can send messages at any time
Message 440
Message 440
Message 440

Figure 4

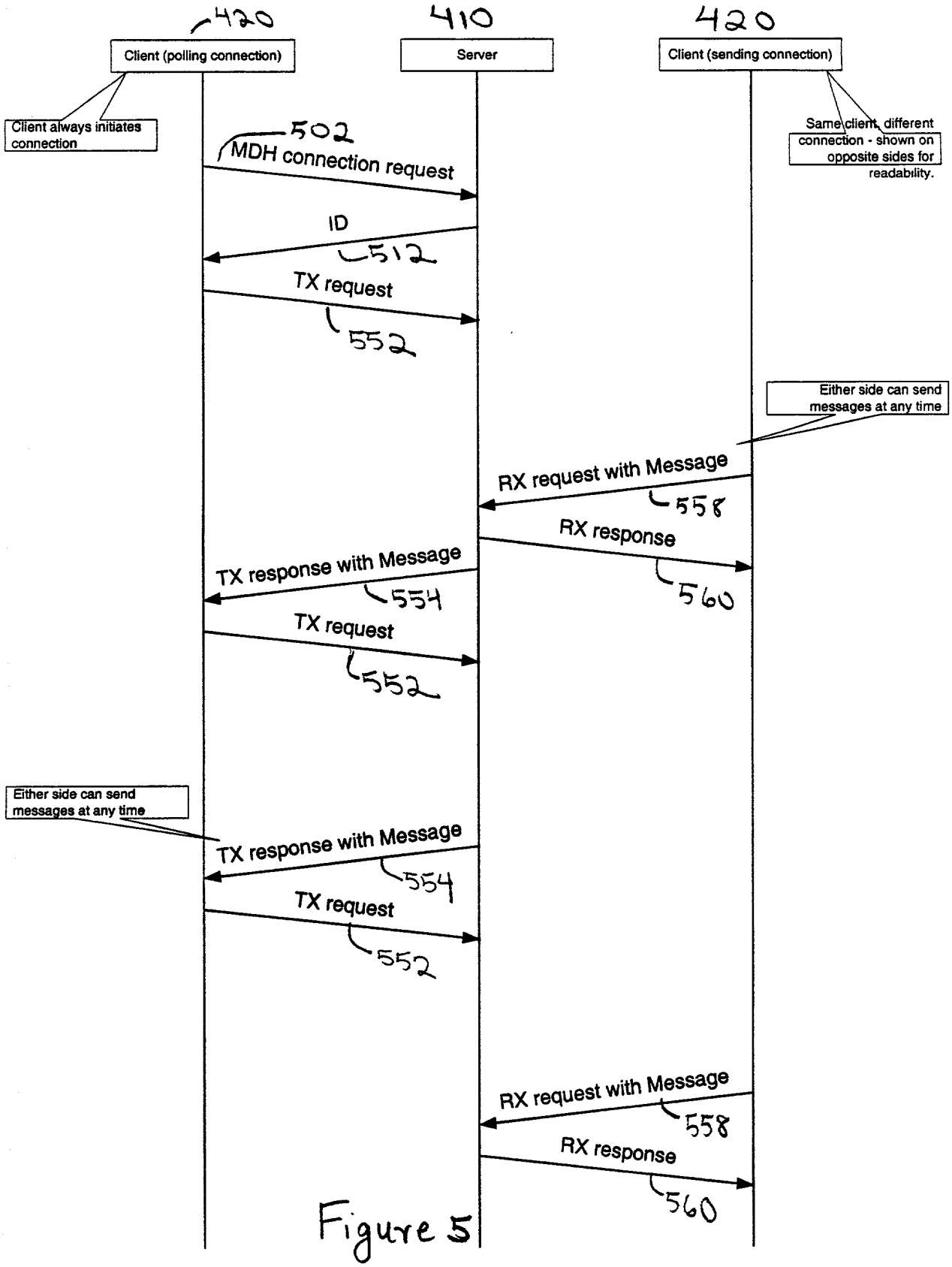
420
Client (polling connection)
410
Server
420
Client (sending connection)
Client always initiates connection
Same client, different connection - shown on opposite sides for readability.
502
MDH connection request
ID
512
TX request
552
Either side can send messages at any time
RX request with Message
558
RX response
560
TX response with Message
554
TX request
552
Either side can send messages at any time
TX response with Message
554
TX request
552
RX request with Message
558
RX response
560

Figure 5

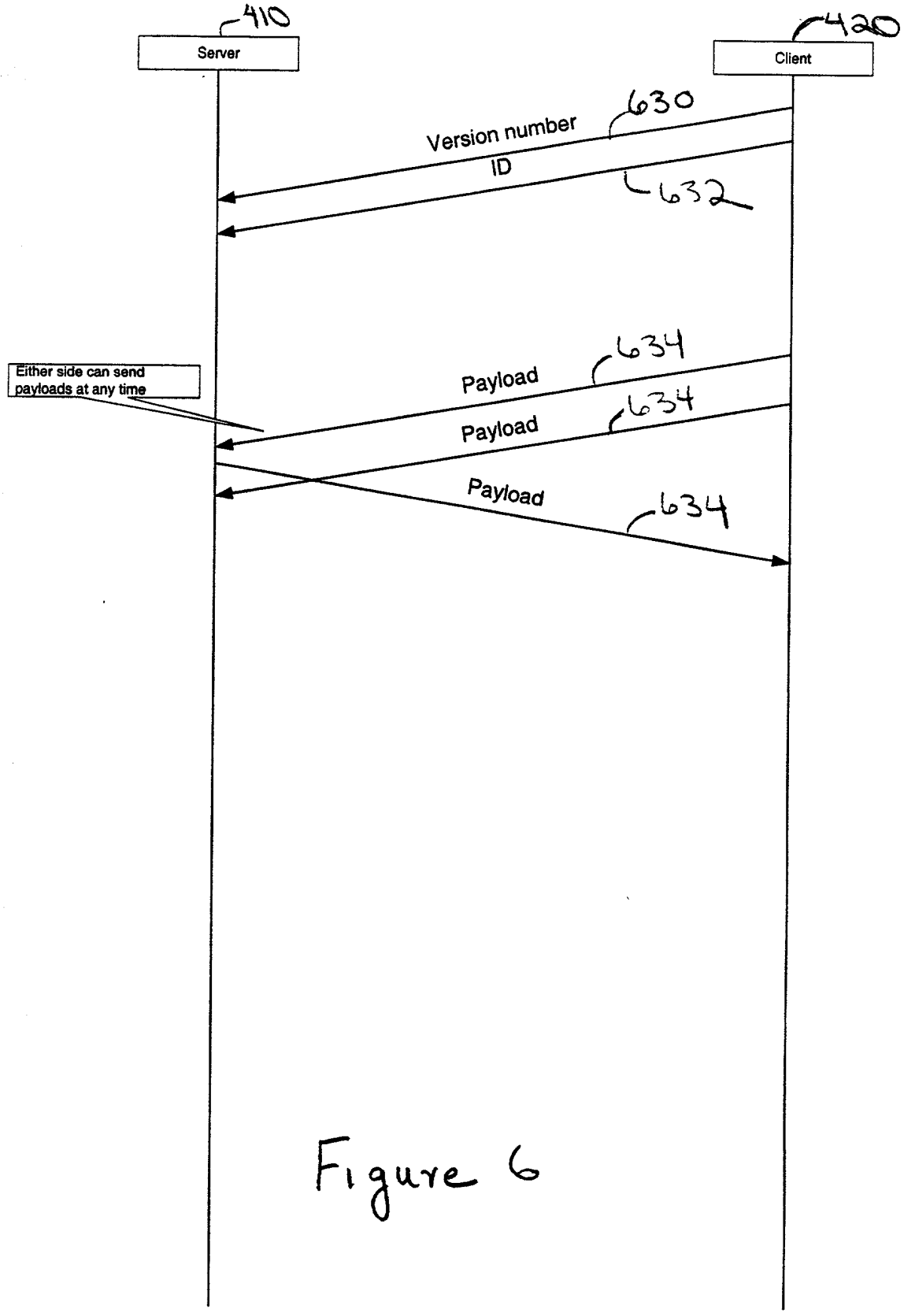
410
Server
420
Client
630
Version number
ID
632
Either side can send payloads at any time
634
Payload
634
Payload
634
Payload

Figure 6

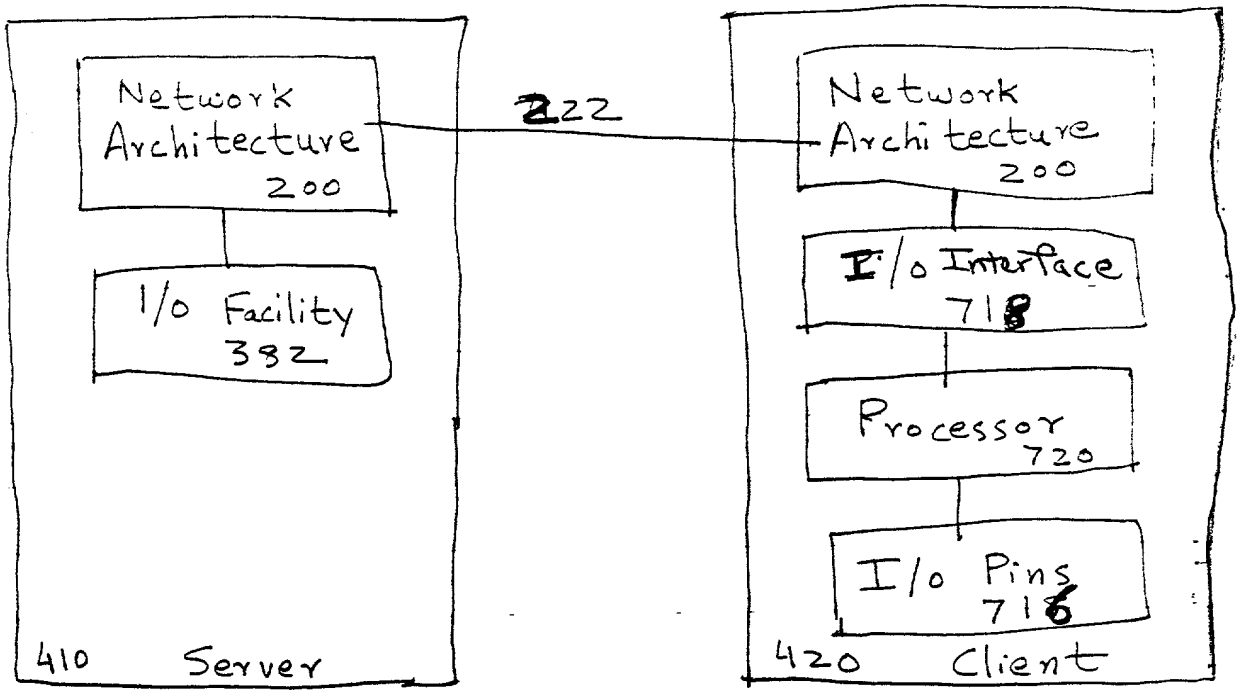
Network Architecture 200
222
Network Architecture 200
I/o Facility 382
I/o Interface 718
Processor 720
I/o Pins 716
410 Server
420 Client

Figure 7

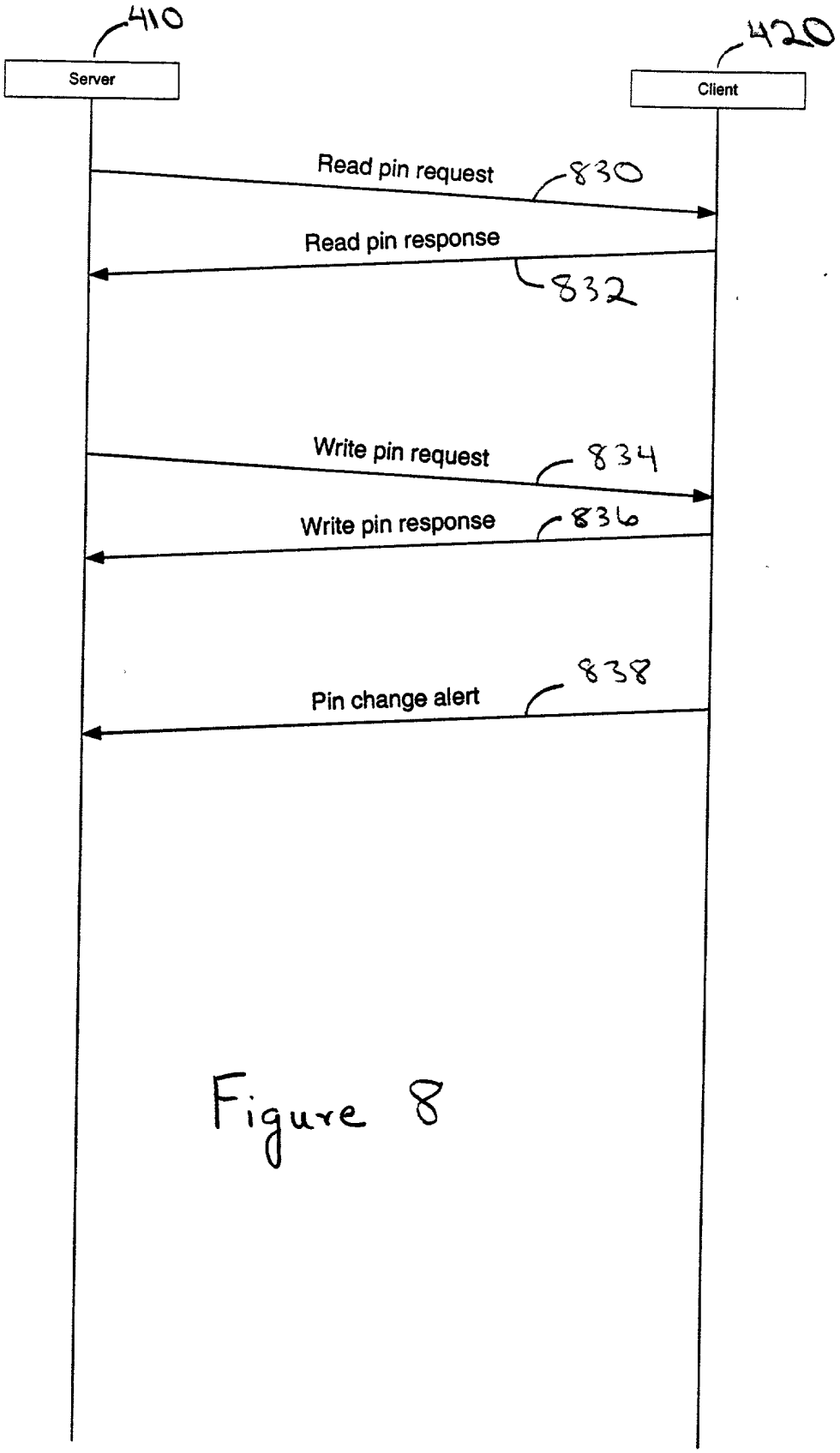
410
Server
420
Client
Read pin request
830
Read pin response
832
Write pin request
834
Write pin response
836
Pin change alert
838

Figure 8

FOR 2.0 "92921660

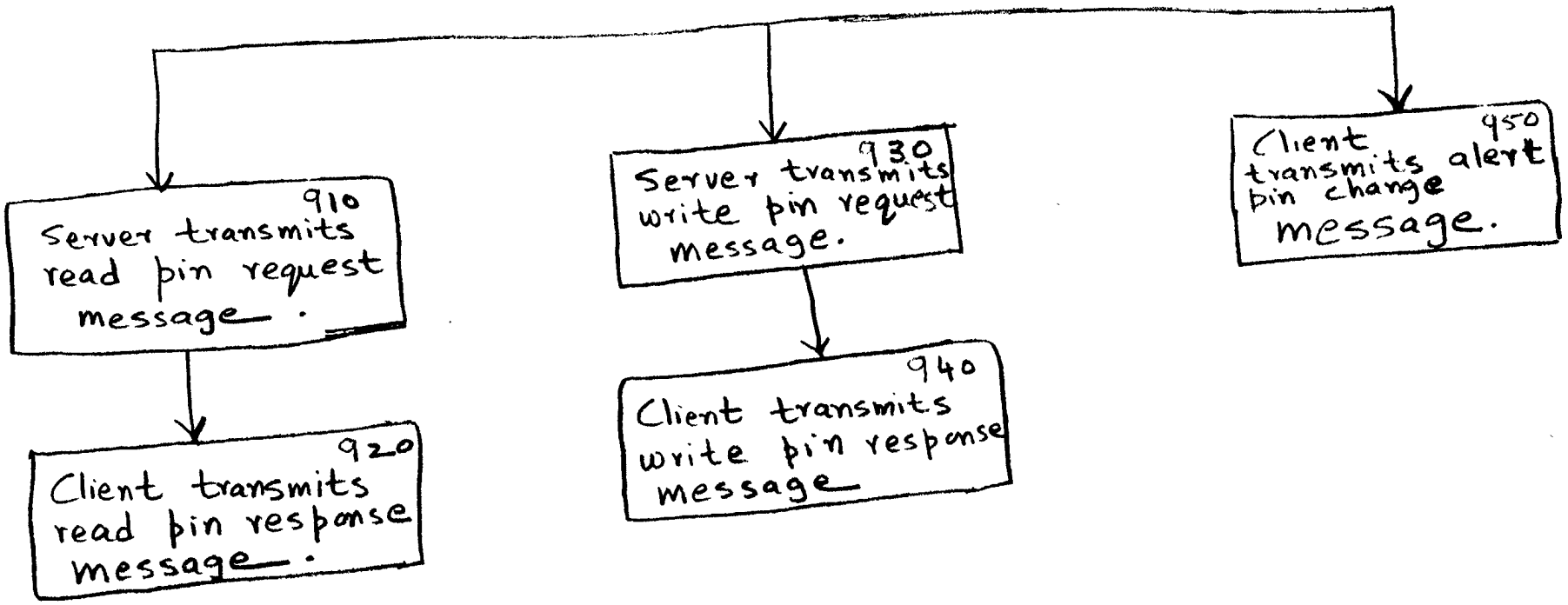

Figure 9

10h20"9E92160

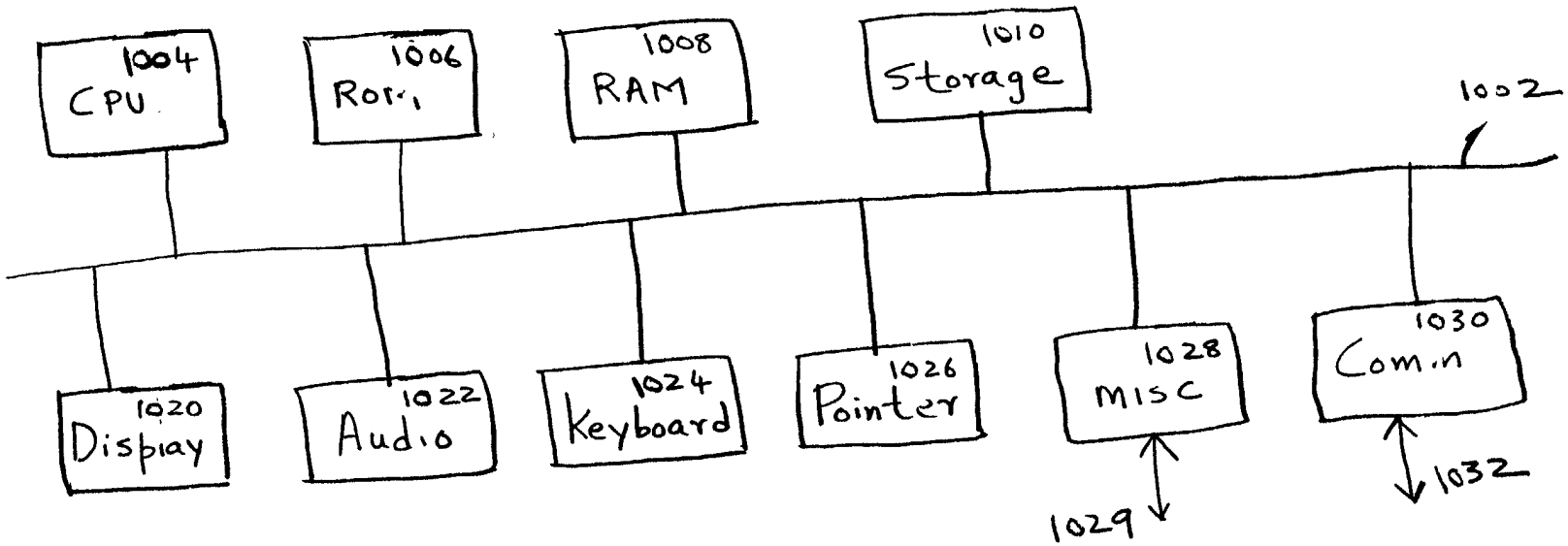

Figure 10

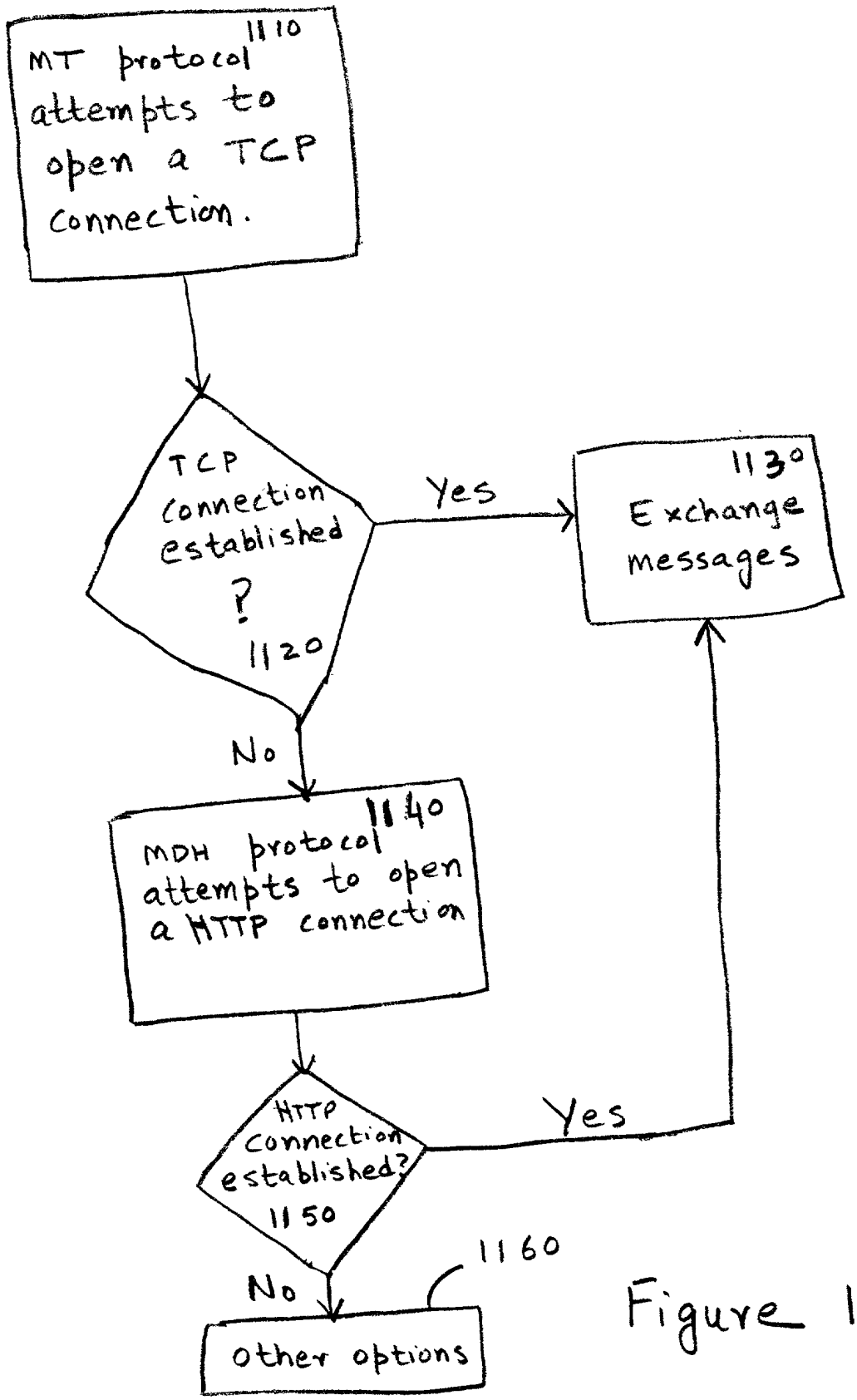
MT protocol attempts to open a TCP connection.
1110
TCP connection established ?
1120
Yes
1130
Exchange messages
No
MDH protocol attempts to open a HTTP connection
1140
HTTP connection established?
1150
Yes
No
1160
other options

Figure 11